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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)
YOR920040025US1

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Application Number	Filed
10/804,516	March 19, 2004

First Named Inventor
A.K. Iyengar et al.

Art Unit	Examiner
2416	Luat Phung

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

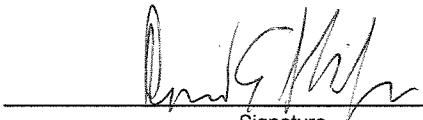
I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☑ attorney or agent of record.
Registration number 59,329.

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____


Signature

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Telephone number

April 3, 2009
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): A.K. Iyengar et al.
Docket No.: YOR920040025US1
Serial No.: 10/804,516
Filing Date: March 19, 2004
Group: 2416
Examiner: Luat Phung

Title: Method and Apparatus for Dynamically Scheduling Requests

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REMARKS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW

Applicants request review of the final rejection dated December 3, 2008, of claims 1-25 of the above-identified application. No amendments are being filed with this request. A Notice of Appeal is submitted concurrently herewith. Applicants incorporate by reference herein all previous responses filed in the above-identified application.

In the final Office Action, the Examiner rejects: (i) claims 1, 5-7, 9 and 14-17 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,449,647 (hereinafter "Colby") in view of newly cited U.S. Patent Publication No. 2004/0258003 (hereinafter "Kokot") ; (ii) claims 2-4, 18-20 and 25 under 35 U.S.C. §103(a) as being unpatentable over Colby/Kokot in view of U.S. Patent No. 6,112,221 to (hereinafter "Bender"); (iii) claim 8 under 35 U.S.C. §103(a) as being unpatentable over Colby/Kokot in view of U.S. Patent No. 6,807,156 (hereinafter "Veres"); (iv) claims 10-12 under 35 U.S.C. §103(a) as being unpatentable over Colby/Kokot in view of U.S. Patent No. 6,981,029 to (hereinafter "Menditto"); (v) claim 13 under 35 U.S.C. §103(a) as being unpatentable over Colby/Kokot/Menditto in view of U.S. Patent No. 6,772,211 (hereinafter "Lu"); (vi) claims 21-23 under 35 U.S.C. §103(a) as being unpatentable over Colby/Kokot/Bender/Menditto; and (vii) claim 24 under 35 U.S.C. §103(a) as being unpatentable over Colby/Kokot/Bender/Menditto/Lu.

Applicants continue to respectfully traverse the §103(a) rejection on the ground that the Colby/Kokot combination fails to teach or suggest each and every limitation of the claims.

To reiterate, independent claim 1 is directed to a method of processing a request to at least one server, comprising the steps of: receiving the request; and scheduling submission of the request to the at least one server based on: (i) a quality-of-service (QoS) class assigned to a client from which the request originated; (ii) a response target associated with the QoS class; and (iii) an estimated response time associated with the at least one server.

As discussed on page 6 of the specification, in one embodiment, the invention provides techniques for scheduling requests at back-end servers in order to provide differentiated classes of quality of service (QoS). The techniques are implemented in the form of a scheduler external to the server. Such an implementation obviates the need for any changes to the back-end server.

Colby discloses (see Abstract) a content-aware flow switch intercepts a client content request in an IP network, and transparently directs the content request to a best-fit server. The best-fit server is chosen based on the type of content requested, the quality of service requirements implied by the content request, the degree of load on available servers, network congestion information, and the proximity of the client to available servers. The flow switch detects client-server flows based on the arrival of TCP SYNs and/or HTTP GETs from the client. The flow switch implicitly deduces the quality of service requirements of a flow based on the content of the flow.

The final Office Action cites column 2, lines 55-56, of Colby to assert that Colby discloses "scheduling submission of the request to the at least one server," as claimed. Column 2, lines 55-56, of Colby states: "[s]pecifically, when a client in an IP network makes a content request, the request is intercepted by a content-aware flow switch, which seamlessly forwards the content request to a server that is well-suited to serve the content request." That is, the Colby flow switch receives the request and determines the "best fit" server for handling the request. However, there is absolutely no disclosure in Colby of determining a schedule for submitting (i.e., scheduling submission) the intercepted request to this best-fit server. The claimed invention uses "(i) a quality-of-service (QoS) class assigned to a client from which the request originated; (ii) a response target associated with the QoS class; and (iii) an estimated response time associated with the at least one server" to schedule submission of the request to a server. Colby merely determines a best-fit server based on some content criteria and then forwards the request to that server.

That is, there is no notion in Colby of scheduling submissions of requests to any server whatsoever. The one and only mention of "scheduling" made in Colby appears to be at column 16, line 58, where the notion of "flow pipes" is described. As explained earlier in column 16, the content-aware flow switch of Colby can be used to front-end many web servers. Each of the physical web servers may embody one or more virtual web hosts (VWH's). Associated with each of the VWH's front-ended by the flow switch may be a "flow pipe," which is a logical aggregation of the VWH's flows. Flow pipes guarantee an individual VWH a configurable amount of bandwidth through the content-aware flow switch. The flow switch allocates the flow pipe bandwidth and shares it among the individual flow pipes using a weighted round robin scheduling algorithm in which the weight assigned to an individual flow pipe is a percentage of the overall bandwidth available to clients. Thus, any scheduling of "flow pipes" done in Colby is restricted to this weighted round robin approach and is not based on the three specific scheduling criteria recited in claim 1, i.e., "(i) a quality-of-service (QoS) class assigned to a client from which the request originated; (ii) a response target associated with the QoS class; and (iii) an estimated response time associated with the at least one server" to schedule submission of the request to a server."

Unrelated to "flow pipes" and round robin schedules, the final Office Action cites column 9, lines 25-32, of Colby to reject the request submission scheduling criteria of claim 1 of "a response target associated with the QoS class." However, all that column 9 of Colby appears to disclose is that "[i]dentifying the nature of the requested content [by the flow switch of Colby] also involves deducing, from the content request and information stored in the CSD [Content Server Database], the QoS requirements of the requested content. These QoS requirements include: Bandwidth, defined by the number of bytes of content to be transferred over the average flow duration. Delay, defined as the maximum delay suitable for retrieving particular content. Frame Loss Ratio, defined as the maximum acceptable percentage of frame loss tolerated by the particular type of content. A QoS class is assigned to a flow based on the flow's calculated QoS requirements." However, again, it is important to point out that any consideration of QoS requirements in Colby is to "identify the content" of the request, not to "schedule submission of the request to a server," as is claimed.

Based on Examiner-admitted deficiencies of Colby, the Kokot reference is specifically introduced to address the failure of Colby to disclose that a quality-of-service (QoS) class is assigned to a client from which a request originated, as claimed. The final Office Action continues to cite paragraph [0116] of Kokot for support.

However, when paragraph [0116] is read in the context of the preceding paragraphs [0103] to [0115], it is clear that Kokot does not assign QoS classes to clients but rather packet flows (for a VoIP call) are what have QoS classes assigned thereto. More particularly, what Kokot discloses is that, as defined by a predefined subscriber profile, some particular packet flows may be treated preferentially and may have a QoS class associated therewith ("[t]he service profile may identify classes of packets that may be forwarded on preferential packet flows"). However, again, this does not mean that a client is assigned to a QoS class, as is expressly claimed. At most, any QoS class mentioned in Kokot attaches to a packet flow, and is not assigned to the client itself, regardless of whether the packet flows come from a particular subscriber or not. Thus, Kokot, in fact, does not remedy the deficiencies of Colby, even assuming that Colby and Kokot were properly combinable.

Since Colby and Kokot are used in each and every other obviousness rejection raised by the final Office Action, Applicants respectfully assert said various obviousness rejections are deficient for at least the same reasons as given above. Bender, Veres, Menditto and Lu fail to remedy the fundamental failure of Colby and Kokot to teach or suggest the limitations of the independent claims. Applicants, after considering the present Office Action in its entirety, respectfully assert the same deficiency arguments presented in their previous response dated May 5, 2008 (the disclosure of which is incorporated by reference herein) with respect to Bender, Veres, Menditto and Lu.

Applicants assert that the various dependent claims are not only patentable for the reasons given above but also because one or more of said claims recite separately patentable subject matter.

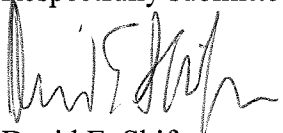
For example, the final Office Action asserts that Bender teaches the step of claim 2 (and also recited in claim 18 in a different form) of withholding the request from submission to the at least one server when the request originated from a client assigned to a first QoS class to allow a request that originated from a client assigned to a second QoS class to meet a response target associated therewith. However, as explained at column 5 of Bender:

> At step 108, once the deadline for each uncompleted job is calculated, server system 10 schedules the jobs in accordance with an earliest deadline first ("EDF") methodology. With an EDF methodology, the first job that server system 10 schedules is the job which has the earliest deadline, as found in step 106, relative to all of the other jobs. It then chooses the job with the next earliest deadline, and schedules it second, and so on until all of the jobs have been scheduled.
>
> At decision step 110, server system 10 inquires whether each and every one of the jobs have completion times which is earlier than each job's respective deadline, as found in step 106. If any job is not able to be completed prior to its deadline, then the estimated stretch value is not feasible and is therefore adjusted at step 112. From step 112, the feasibility of the adjusted stretch value is re-checked by returning to step 106.

Thus, Bender schedules a job based on completion times and deadline times associated with *that particular job*. Bender does not withhold the request from submission to the at least one server when the request originated from a client assigned to a first QoS class to allow a request that originated from a client assigned to a second QoS class to meet a response target associated therewith. That is, Bender does not schedule jobs based on a "response target" associated with *a particular QoS class*.

In view of the above, Applicants believe that claims 1-25 are in condition for allowance, and again respectfully request withdrawal of the various remaining rejections.

Respectfully submitted,



Date: April 3, 2009

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